

### **REMARKS**

Entry of the foregoing, and reconsideration and further examination of the subject application, in view of the amendments above and the remarks below, are respectfully requested.

#### **Interview Summary**

Applicant would like to thank Examiner Afremova for her time in discussing the application with Eric Middlemas and Spencer Hochstetler on March 18, 2008. The Examiner's Interview Summary (Form PTOL-413), dated March 18, 2008, accurately reflects the substance of the interview and is incorporated herein by reference.

#### **Status of Claims**

By the above amendments, claim 1 has been rewritten to incorporate all or part of dependent claims 6, 7, 9, 10 and 12. In addition, claim 1 has been amended to state that the aqueous dispersion or emulsion of a polymer or organic pigment is at least one component of an architectural or metal coating, adhesive, cosmetic, ink, or polish. Support for these changes may be found generally throughout the application and, specifically, at paragraphs 12-15, and claims 6, 7, 9, 10 and 12 as originally filed. Claims 6, 7, 9, 10 and 12 have been canceled. Claims 11 and 13 have been amended to be dependent on non-

canceled claims. Claims 18-40 were withdrawn by previous amendment from consideration in response to a restriction requirement.

Thus, upon entry of the foregoing amendments, claims 1-4, 11, and 13-40 are pending in the application. Claims 1-4, 11, and 13-17 are under consideration. Applicants include herewith a listing of the claims showing changes made by the current amendment.

#### **Claim Rejections – 35 U.S.C. 102(b)**

Claims 1-4, 6, 7, and 9-11 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by German Patent Application DE 196 25 137 A1 to Balk et al. ("Balk"). For at least the reasons below, this rejection should be withdrawn.

Balk does not disclose or suggest each feature of rewritten claim 1. In particular, Balk does not disclose or suggest agitating an aqueous dispersion or emulsion of a polymer or organic pigment. Balk also does not disclose or suggest using a particulate disruption agent having an average diameter of about 0.1 to about 1 millimeter. By contrast, Balk only discloses chemical lysis as a method of disruption of living cells. Thus, Balk fails to disclose or suggest each feature of the present claims.

Claims 1–3 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by European Patent Application EP 0 542 790 B1 to Pahuski et al. (“Pahuski”). For at least the reasons below, this rejection should be withdrawn.

Pahuski fails to disclose or suggest each feature of rewritten claim 1. For example, Pahuski does not disclose or suggest agitating an aqueous dispersion or emulsion of a polymer or organic pigment wherein the dispersion or emulsion is a component of an architectural or metal coating, adhesive, cosmetic, ink or polish. In addition, Pahuski fails to disclose or suggest agitation of an aqueous dispersion or emulsion of a polymer or emulsion in the presence of a particulate disruption agent having an average diameter of about 0.1 to about 1 millimeter. Thus, Pahuski also fails to disclose or suggest each feature of the present claims.

None of the cited references disclose or teach each feature of the claims as amendment. Applicants respectfully request that the anticipation reject be withdrawn.

### **Claim Rejections – 35 U.S.C. § 103**

Claims 1–4, 6, 7 and 9–17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over European Patent Application, EP 0 542 790 B1 to Pahuski et al. (“Pahuski”) and Calvo–Bado et al. *Applied and Environmental Microbiology*, April 2003, Vol. 69, p. 2116–2125 (“Calvo–Bado”); and German

Patent Application DE 196 25 137 A1 to Balk et al. ("Balk") taken with Geciova et al, "Methods for disruption of microbial cells for potential use in the dairy industry – a review," *International Dairy Journal*, Vol. 12 (2002), p. 541–553; and US Patent No. 5,017,564 to Makino et al ("Makino"). For at least the following reasons, this rejection should be withdrawn.

The deficiencies of Balk and Pahuski are discussed above. The combination of Balk and Pahuski do not remedy these deficiencies. For example, Balk discloses only chemical lysis of living cells as a reliable means to detect ATP and is absolutely silent on alternative cell disruption methods. Similarly, Pahuski discloses only chemical disruption methods and does not address disruption of living cells within dispersions or emulsions of polymers or pigments. Neither reference teaches agitation of aqueous dispersion or emulsion of a polymer or emulsion in the presence of a particulate disruption agent having an average diameter of about 0.1 to about 1 millimeter to release ATP from the living cells therein. Thus, even if combined, Balk and Pahuski would not have led persons skilled in the art to make the claimed invention.

Calvo-Bado does not cure the deficiencies of Balk and Pahuski for at least 2 reasons. First, Calvo-Baldo cannot be properly combined with Balk. Balk is directed to aqueous dispersions of polymers or pigments. On the other hand, Calvo-Baldo is directed to irrigation water samples and does not mention dispersions or emulsions of polymers or pigments. The nature of these

disclosures are so different that persons skilled in the art would not have looked to one for ways of modifying the other. In addition, Balk and Pahuski each disclose that cells can be disrupted by chemical lysis. There is no suggestion or disclosure of alternative disruption methods. Accordingly, there would have been no reasonable motivation that would have led a person of ordinary skill in the art to modify the disclosures of Balk and Pahuski with the disclosure of Calvo-Bado.

Second, the disclosure of Calvo-Baldo, when considered in its entirety, would have led the skilled person away from the claimed invention instead of toward it (the Examiner respectfully is referred to the MPEP §2141.02 (IV)). Calvo-Baldo discloses filtration of the water sample prior to disruption of cells with a bead mill. Such a filtration would destroy an emulsion or filter out a dispersion. The combination of Calvo-Bado and Balk, therefore, would have prompted the skilled person to carry out cell disruption on a filtered sample instead of on an aqueous dispersion or emulsion. Thus, even if combined, the combination of Balk, Pahuski, and Calvo-Bado would not have led the skilled person to make the claimed invention.

The disclosure of Geciova does not remedy the deficiencies of Balk, Pahuski, and Calvo-Bado. Geciova is directed toward cell disruption techniques for microorganisms found in the dairy industry. These materials are entirely different from aqueous dispersions or emulsions of polymers or organic

pigments which are components of architectural or metal coatings, adhesives, cosmetics, inks, or polishes. Further, Geciova is directed to the disruption of cells for the production of enzymes, proteins, and bioproducts and not for the release of ATP. A person skilled in the art would certainly recognize and understand that the cell disruption techniques disclosed by Geciova as useful for the harvesting of bioproducts may not be useful for the release of ATP in a way that would permit its subsequent detection and analysis. Since the materials and objectives of Geciova and the other cited references are so different, persons skilled in the art would not have found it obvious to apply the teachings of one to the other, much less have a reasonable expectation of success in doing so.

Even if considered in any reasonable combination with Balk, Pahuski and Calvo-Bado, there is nothing in Geciova that would have motivated a person skilled in the art at the time the invention was made to select particular elements and to combine them to obtain Applicants' claimed process. Geciova discloses a wide variety of both chemical, mechanical, enzymatic, and physical disruption methods but provides no guidance or particular emphasis on any single method that would cause the person of ordinary skill to select one method over another for the disruption of living cells within the aqueous dispersions or emulsions of Applicants invention to release ATP. For example, Geciova teaches that chemical, sonication, and high pressure homogenization

methods are effective for cell disruption in dairy products. See, for example, Geciova, p. 543, section 3 and Table 2, p. 547. Applicants, however, have shown that sonication, high pressure homogenization, and chemical lysis, give poor results for the release of ATP when applied to aqueous latex emulsions. See Examples 11–17 and Table 2 of the present application. Hence, simply substituting one cell disruption method for another does not yield predictable results for the release and detection of ATP. This unpredictability applies to both chemical and mechanical lysing methods. By contrast, use of a particulate disruption agent, i.e., glass beads, dramatically and unexpectedly increases the release of ATP. Therefore, even if Geciova were combined with the disclosures of Balk, Pahuski, Calvo–Bado, that combination would still not have caused a person skilled in the art to select one method to make the claimed invention.

Makino also does not cure the shortcomings of Balk, Pahuski, Calvo–Bado, and Geciova and rely on their previous response which is incorporated herein by reference. As Applicants have noted in their previous response, the disclosure of Makino is drawn to increasing the stability and, hence, the shelf life the disodium salt of ATP within a solid, pharmaceutical composition for ingestion by humans. On the other hand, Balk, Pahuski, Calvo–Bado, and Geciova are drawn to detecting living cells within various aqueous environments by disruption of the cells and detection of the ATP released. The divergent teachings of these disclosures would not have cause a person of ordinary skill

in the art to look to one to modify the other. Moreover, even if combined, the combination would not have led the skilled person to make the invention as claimed.

Accordingly, for the reasons set forth above, there is no *prima facie* case of obviousness. Applicants respectfully request that the rejection be withdrawn.

### Conclusion

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If the Examiner has any questions concerning this Reply, or the application in general, the Examiner is invited to telephone the undersigned at the number listed below.

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